Central Indiana
Fall 2015 Summary

As we begin the month of December, we mark the conclusion of meteorological fall and welcome meteorological winter. Temperatures remained above average throughout much of the fall, producing the warmest fall since 2007. Overall, the fall of 2015 saw average temperatures above normal by 2 to 5 degrees and generally 4 to 6 degrees warmer than the cool 2014 fall season. The dry conditions that developed in August after the exceptionally wet first half of summer continued throughout the fall, with many parts of central Indiana running 2 to 4 inches below normal on precipitation. Most of central Indiana did not experience their first snow until late November.

The following is a summary of weather conditions experienced in Central Indiana during the months of September, October, and November 2015.

Temperatures

The fall of 2015 was the **9th warmest fall ever at Indianapolis** and the warmest fall since 2007, with an average temperature of 58.5°. This is 3.3° above the normal fall average temperature of 55.2°.

September

September started out hot with multiples days in the lower and middle 90s through the Labor Day weekend. At Indianapolis, it was the hottest start to a September in 90 years with seven of the first eight days of the month at or above 90 degrees. The heat finally broke on the 9th with the passage of a cold front, and the arrival of an upper level trough brought the coolest highs experienced since May as many locations remained in the middle and upper 60s on the 11th and 12th.

Temperatures once again returned to above normal levels by the middle of the month and remained there for most of the second half of September. Highs were largely above 75 degrees throughout the second half of the month with multiple days warming into the 80s. Cooler weather arrived on the 29th as a cold front slowly made its way through central Indiana, with highs remaining in the 60s for the last day of the month.

At Indianapolis, the average temperature of 70.5 degrees resulted in the warmest September since 2010. The 18 days of highs at 80 degrees or warmer also was the most in a September since 2010. The 7 days of highs 90 degrees or warmer in September was the most since 1999.

October

A quick cool snap occurred during the first few days of the month as moisture was drawn north into the region from a stagnant upper low over the Carolinas. The coolest day of the month for many took place on the 3rd as a combination of clouds and light rain kept highs in the upper 40s and lower 50s. Temperatures warmed immediately however with the departure of the system, with a return to sunny and dry conditions bringing several days with highs in the middle and upper 70s from the 4th through the 8th.

The passage of a weak cold front on the 9th, brought highs down slightly, falling back into the upper 60s and lower 70s through the middle of the month. A cold front passed through central Indiana during the afternoon and evening of the 15th, with a strong area of Canadian high pressure ushering in much cooler weather over the following couple of days. The growing season ended for some spots on the 17th and for the entire area on the 18th as morning lows fell into the 20s both days.

Temperatures rose once again following the hard freeze on the morning of the 18th, peaking with afternoon highs into the lower 80s for many on the 22nd. Highs fell back into the 60s and 70s through the 26th, before even cooler weather followed as the remnants and moisture from Hurricane Patricia impacted the region. The last few days of the month saw near to slightly below normal temperatures with highs in the 50s and lows in the upper 30s to middle 40s.

November

High pressure and southerly winds produced one of the warmest starts to a November over central Indiana in recent memory. Highs rose into the middle and upper 70s during the first few days of the month, resulting in the 5th warmest first five days of November on record and the warmest since November 2003. The 76 degree high on November 4 and 5 were the warmest days in November in Indianapolis since November 4, 2003 when the high temperature reached 78.

The passage of a cold front late on the 5th prompted a return to more seasonable but still largely warmer than normal temperatures through the middle of the month as highs were largely in the 50s and lower 60s. The passage of a strong low pressure through the Ohio Valley on the 18th brought in progressively cold weather as highs fell into the 40s. An upper level system tracking through the lower Great Lakes on the 21st brought the first accumulating snow to parts of central Indiana. The snow had a big impact on temperatures on the 22nd, as morning lows started out in the single digits and teens under clear skies, followed by the coldest daytime high of the month ranging from the mid and upper 20s north to middle 30s south. Most areas along and north of Interstate 70 remained below freezing on the 22nd.

Temperatures recovered through the 27th, with central Indiana enjoying the warmest Thanksgiving Day since 2012 as highs rose into the 60s. A colder airmass once again returned to the region in wake of a cold frontal passage late on the 27th. Under cloudy skies, highs remained in the upper 30s to middle 40s for the last few days of the month.

Overall, average temperatures were generally 3 to 6 degrees above normal for November in central Indiana. After the chilly November experienced in 2014, average temperatures were 10 to 12 degrees warmer this November. For Indianapolis, November 2015 was the 8th warmest on record and the warmest since November 2011.

Temperature Data for Other Sites in Central Indiana

Site	Fall 2015 Temperature	Normal Temperature	Diff. From Normal
Indianapolis Int'l Arpt	58.5°	55.2°	**+3.3°**
Lafayette	56.2°	54.4°	**+1.8°**
Muncie	55.7°	54.4°	**+1.3°**
Terre Haute	57.5°	53.9°	**+3.6°**
Bloomington	57.9°	54.7°	**+3.2°**
Shelbyville	59.1°	54.5°	**+4.6°**
Indianapolis – Eagle Creek	57.7°	55.3°	**+2.4°**

Fall Extremes Across Central Indiana

Site	Warmest Temperature	Coldest Temperature
Indianapolis Int'l Airport	94 on 9/4	16 on 11/22
Lafayette	94 on 9/4	8 on 11/22
Muncie	90 on 9/6 and 9/7	17 on 11/22
Terre Haute	94 on 9/4 and 9/6	17 on 11/22
Bloomington	93 on 9/6	19 on 11/22
Shelbyville	94 on 9/4 and 9/5	21 on 11/22
Indianapolis-Eagle Creek	93 on 9/4	16 on 11/12

Precipitation

Overall this was the **35th driest fall on record at Indianapolis**. The total rainfall for Indianapolis this fall was 6.38 inches. This was 1.44 inches below the normal fall rainfall total of 9.94 inches.

September

September rainfall ranged from below normal in southern Indiana to much above normal in northwest Indiana. Monthly totals measured from 0.75 inches in southern Indiana to nearly 11 inches in northwest Indiana. Much of the area along and north of the I-70 corridor received between 2 and 4 inches of rain during the month while south of I-70 received only 1 to 3 inches.

Rainfall was not equally distributed during September. Rain occurred nearly each day in the state from the 1st through the 12th, but only on the 18th and 19th from the 13th through the 25th. Spotty showers returned to central and southern Indiana on 26th and 27th with widespread coverage in central and southern Indiana on the 29th. Daily rainfall totals exceeded 2 inches in scattered areas on the 1st, 5th, 9th, 11th, 18th, 19th and 29th.

River or stream flooding did not occur in central or southern Indiana for the first since October 2014. Abnormally dry conditions developed in more than 30% of the state by the 22nd according to the U.S. Drought Monitor. The dry areas were in southern Indiana. Rainfall of a half inch or more on the 29th helped alleviate the abnormally dry conditions in southern Indiana.

October

The remnants of Hurricane Patricia brought the biggest rain event to much of central and southern Indiana in more than three months. Rainfall of 1 to more than 4 inches in less than 2 days helped relieve drought and fire danger conditions that were building during October. Prior to the 27th, this was the driest start to October for the Indianapolis area in 52 years.

Monthly totals prior to the remnants of Hurricane Patricia varied from around one-tenth of an inch in west central Indiana to slightly over 2 inches in southwest. Afterwards, the total rainfall during October measured from around an inch in northwest Indiana to more than 7 inches in portions of southwest Indiana. Much of central and southern Indiana received 1 to 4 inches during the month. Additional light rainfall fell on the 31st as a weak upper level disturbance tracked through the area.

Even with the rainfall on the 27th and 28th, monthly rainfall was below normal for much of the state. Only south central, southeast and portions of southwest, central and east

central Indiana received normal to above normal rainfall during October. This was the driest October for the Indianapolis area since 2010.

Abnormally dry (D0) to moderate drought (D1) conditions prevailed in nearly 80% of the state prior to the 27th according to the U.S. Drought Monitor. This was the driest late October for the state in 5 years. At the end of the month, stream flow was at or above seasonal levels as a result of the recent rains.

November

November monthly rainfall and melted precipitation measured from near 1.5 inches in northeast Indiana to over 6 inches in south central Indiana. Much of the state received below normal to normal precipitation during November. Only portions of extreme western and southern Indiana saw above normal monthly totals.

Snowfall during November was confined to northern and central portions of Indiana. In central Indiana, monthly snowfall totals ranged 2 to 5 inches in areas west and north of Indianapolis with nearly 10 inches in extreme northern Indiana. Around an inch or less fell in the remainder of central Indiana. All of November's snowfall occurred from late on the 21st through the 22nd.

The most extensive rainfall during November fell in a four-day period from late on the 25th through early on the 29th. Rainfall of one-half inch in northern Indiana to more than 2 inches in west central Indiana helped relieve dry conditions in much of the state.

Abnormally dry to moderate drought conditions decreased from nearly 90% coverage in the state to less than 30% during the month. Stream flow was at or above seasonal levels at the end of November.

Rainfall Data for Other Sites in Central Indiana

Site	Fall 2015 Rainfall	Normal Rainfall	Diff. From Normal
Indianapolis Int'l Arpt.	6.38"	9.94"	**-3.56"**
Lafayette	7.40"	8.52"	**-1.12"**
Muncie	6.60"	10.83"	**-4.23"**
Terre Haute (*)	8.07"	9.33"	**-1.26"**
Bloomington	8.09"	10.82"	**-2.73"**
Shelbyville	8.10"	10.01"	**-1.91"**
Indianapolis – Eagle Creek	6.95"	9.06"	**-2.11"**

(*) Precipitation at Terre Haute was missing on 10/27.

Major Weather Events

Very little severe weather occurred across central Indiana during the 2015 fall season. Scattered strong to severe storms developed on the afternoon and evening of September 4th focused over the eastern half of central Indiana. A measured 70 mph wind gust brought trees and limbs down near Greenfield, and penny to nickel size hail was reported from the eastern Indianapolis suburbs east into Hancock County. A line of severe storms moved into the northern Wabash valley late on the evening of September 18th before weakening, producing penny size hail and wind gusts up to 80 mph over parts of Tippecanoe County.

No severe weather occurred in central Indiana during October and November. Gusty winds with a line of showers along a cold front on the evening of October 28th produced isolated wind damage near Yorktown in Delaware County. A broken line of showers with a few thunderstorms ahead of a strong cold front produced stronger wind gusts up to 45 to 50 mph in spots early on the morning of November 12th.

For information on severe weather in other areas throughout the fall, visit the Storm Prediction Center "Severe Weather Event Summaries" website at **http://www.spc.noaa.gov/climo/online/**.

Winter 2015-2016 Outlook for Central Indiana

The official outlook for the 2015-16 winter season (December-February) from the Climate Prediction Center, indicates greater chances for near to slightly above normal temperatures across central Indiana. At Indianapolis, the average temperature for the winter season is 30.5°. The outlook also calls for a greater chance of below normal precipitation. The average precipitation is 8.15" with 22.0" of snowfall.

It is important to note that below normal precipitation does not always equate to less snowfall. As an example, Indianapolis recorded 26.9" of snow in January 2014, well above the average of 8.6". Total monthly precipitation of 2.34" however was nearly a third below the January normal.

Data prepared by the NWS Indianapolis Climate Team
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